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10/668,581

09/23/2003

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03/13/2006

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EXAMINER

ROSENBERGER, FREDERICK F

ART UNIT

PAPER NUMBER

2884

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                          |                   |  |
|------------------------------|--------------------------|-------------------|--|
| <b>Office Action Summary</b> | Application No.          | Applicant(s)      |  |
|                              | 10/668,581               | HOFFMAN, DAVID M. |  |
|                              | Examiner                 | Art Unit          |  |
|                              | Frederick F. Rosenberger | 2884              |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5-8,10,14-18,21 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1,5-8,10,14-18,21 and 23-27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's reply, filed 23 December 2005, has been received and entered. Accordingly, claims 1, 5-8, 10, 14, 15, 18, 21, 24, and 25 have been amended. Claims 2-4, 9, 11-13, 19, 20, and 22 have been cancelled. No new claims have been added. Thus, claims 1, 5-8, 10, 14-18, 21, and 23-27 are currently pending in this application.

### ***Claim Objections***

2. Claims 16, 24, and 25 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

With regards to claim 16, which is dependent upon claims 14 and 15, applicant requires the detector module to be not buttable. However, claim 14, already requires the detector module to be buttable. This is improper dependent form, as limitations of the parent claims cannot be replaced in the dependent claim. The test for a proper dependent claim is whether the dependent claim includes every limitation of the parent claim. The test is not whether the claims differ in scope. A proper dependent claim shall not conceivably be infringed by anything which would not also infringe the basic claim. For the purposes of this Office action, claim 16 has been interpreted to depend upon independent claim 10 to alleviate the improper dependency issue.

With regards to claim 24, which is dependent upon claim 23, applicant replaces the silicon substrate recited in the limitations of claim 23 with a high density flex circuit.

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Claim 23 already requires the substrate to be a silicon substrate while the limitations of claim 24 require the substrate to be a high density flex circuit. This is improper dependent form, as limitations of the parent claims cannot be replaced in the dependent claim. The test for a proper dependent claim is whether the dependent claim includes every limitation of the parent claim. The test is not whether the claims differ in scope. A proper dependent claim shall not conceivably be infringed by anything which would not also infringe the basic claim. For the purposes of this Office action, claim 24 has been interpreted to depend upon independent claim 18 to alleviate the improper dependency issue.

With regards to claim 25, which is dependent upon claim 23, applicant replaces the silicon substrate, recited in the limitations of claim 23 with a multilayer ceramic. Claim 23 already requires the substrate to be a silicon substrate while the limitations of claim 25 require the substrate to be a multilayer ceramic substrate. This is improper dependent form, as limitations of the parent claims cannot be replaced in the dependent claim. The test for a proper dependent claim is whether the dependent claim includes every limitation of the parent claim. The test is not whether the claims differ in scope. A proper dependent claim shall not conceivably be infringed by anything which would not also infringe the basic claim. For the purposes of this Office action, claim 25 has been interpreted to depend upon independent claim 18 to alleviate the improper dependency issue.

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3. Claims 1, 5-8, 10, 14-18, 21, and 23-27 are objected to for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 18-21, applicant recites that a plurality of detector modules are arranged in a rigid array and being movable to one of three positions. However, claim 1 defines the detector module itself. Thus, lines 18-21 further define the detector module as comprising a plurality of detector modules. Such wording is indefinite and unclear, since the detector modules comprising the array are defined by the limitations of claim 1. Claim 10, lines 17-20 and claim 18, lines 19-22 have similar issues as claim 1. The balance of the claims is objected to as being dependent upon independent claims 1, 10, or 18.

4. Claims 1, 8, 10, 17, 18, 21 23, and 27 are objected to because of the following informalities:

In claim 1, line 9, "the substrate" should be --the substrate material-- for proper antecedent basis.

In claim 1, line 16, "signal processing chips" should be --the signal processing chip-- for proper antecedent basis.

In claim 8, lines 1-2, "the second end" lacks proper antecedent basis in claims 1 and 7.

In claim 8, lines 2-3, "the top x-ray translucent layer" should be --the top x-ray transparent layer-- for proper antecedent basis in claim 1.

In claim 8, line 3, "the bottom graphite layer" should be --the graphite bottom layer-- for proper antecedent basis in claim 1.

In claim 10, line 12, "the substrate material" should be --the substrate-- for proper antecedent basis with line 7 of claim 10.

In claim 10, line 13, "the substrate material" should be --the substrate-- for proper antecedent basis with line 7 of claim 10.

In claim 10, line 15, "direct conversion material" should be --direct conversion block-- for proper antecedent basis with line 8 of claim 10.

In claim 10, line 15, "ASICS chips" should be --the ASICS chip-- for proper antecedent basis with line 10 of claim 10.

In claim 17, lines 2-3, "the top and bottom graphite layers" lacks proper antecedent basis in claim 10 and 14-16, as only top and bottom layers have been defined.

In claim 18, line 12, "the substrate" should be --the substrate material-- for proper antecedent basis with line 8 of claim 18.

In claim 18, line 17, "direct conversion material" should be --direct conversion block-- for proper antecedent basis with line 9 of claim 18.

In claim 18, line 17, "ASICS chips" should be --the ASICS chip-- for proper antecedent basis with line 11 of claim 18.

In claim 21, line 1, claim 21 depends on cancelled claim 20. For the purposes of this Office action, claim 21 is assumed to depend on claim 18.

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In claim 23, line 1, claim 23 depends on cancelled claim 22. For the purposes of this Office action, claim 23 is assumed to depend on claim 18.

In claim 27, lines 1-2, "the second end" lacks proper antecedent basis in the claim.

In claim 27, lines 2-3, "the top and bottom graphite layers" lacks proper antecedent basis, as only top and bottom layers have been defined.

Appropriate correction is required.

5. The following comments apply to the claims as amended but do not qualify as objections. Applicant should consider these comments in any amendment to the pending claims:

In claim 6, applicant has defined a second end of the detector module but has not defined a first end in the claims.

In claim 15, applicant has defined a second end of the detector module but has not defined a first end in the claims.

In claim 17, applicant has defined a second end of the detector module but has not defined a first end in the claims. Further, it is noted that the second end only has antecedent basis in claim 15, upon which claim 16 depends. Should the dependency of claim 16 be changed, antecedent issues would arise for "the second end of the detector module".

In claims 24 and 25, "the substrate material" will have proper antecedent basis assuming claim 23 depends either directly or indirectly from claim 18.

In claim 27, applicant has defined a second end of the detector module but has not defined a first end in the claims.

***Response to Amendment***

6. Applicant's amendment to cancel claims 2, 11, and 19 has successfully overcome the objections to the drawings, as detailed in paragraph 1 of the previous Office action.

7. Applicant's amendment of the claims has successfully overcome some of the objections to the claims, as detailed in paragraphs 2-3 of the previous Office action. All outstanding objections to the claims are addressed above.

8. Applicant's amendment of independent claims 1, 10, and 18 has successfully overcome the rejection of claims 1, 10, and 18, as detailed in paragraphs 7 and 9 of the previous Office action.

***Allowable Subject Matter***

9. Claims 1, 5-8, 10, 14-18, 21, and 23-27 would be allowable if rewritten or amended to overcome the objections as set forth in this Office action.

10. The following is a statement of reasons for the indication of allowable subject matter: Applicant has amended independent claims 1, 10, and 18 to incorporate previously indicated allowable subject matter from claims 4, 13, and 22. Thus, claims 1,



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10, and 18 are directed towards an X-ray detector module, with an end block support between the electrode on a top layer and the substrate material wherein the end block support both supports the layer structure and provides a connector from the substrate material to further signal processing hardware. The prior art as a whole is silent in this regard, as typically the layer structure is self-supportive and electrical connections can be made via direct connection to the substrate or supports are included between top and bottom layers without electrical connections (see Jeromin et al., Sato et al., Von Der Haar, and Rieppo et al. for specific examples). As there is not suggestion or motivation in the prior art for an end support with a connector per the limitations of the claims, applicant's invention constitutes a novel and nonobvious improvement over the prior art. As such claims 1, 10, and 18 and their associated dependent claims would be allowable.

### ***Conclusion***

11. This application is in condition for allowance except for the following formal matters: The objections to the claims, as detailed above.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.


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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick F. Rosenberger whose telephone number is 571-272-6107. The examiner can normally be reached on Monday-Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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